In the claims:

1. (currently amended) A software system implemented in a circuit for sensing P-waves in a pacemaker, the system in combination with the circuit comprising:

means for detecting a plurality of atrial depolarization signals wherein said means for detecting comprises at least two subcutaneous electrodes in data communication with said means for pacing; and

means for pacing a ventricle synchronously with each one of said ~~detected~~ plurality of atrial depolarization signals detected by the at least two subcutaneous electrodes;

~~wherein said means for detecting comprising at least two subcutaneous electrodes in data communication with said means for pacing, and~~

wherein said means for pacing further comprises at least one pacing lead and wherein a first of said at least one pacing lead is adapted to electrically couple to a ventricular chamber.

2. (original) The system of claim 1 wherein said means for pacing is a single chamber ventricular-inhibited pacemaker.

3. (previously presented) The system of claim 2 wherein said pacemaker includes a hermetically sealed case including said at least two subcutaneous electrodes being peripherally distributed about the perimeter of the case.

4. (previously presented) The system of claim 2 wherein the at least one pacing lead comprises a ventricular pacing lead.

5. (previously presented) The system of claim 4 wherein said ventricular pacing lead is one of a unipolar pacing lead and a bipolar pacing lead.

6. (currently amended) A sensing circuit operating in co-operation with a pacemaker, a lead and at least one subcutaneous electrode array (SEA) implemented for pacing the ventricle synchronous with atrial depolarization signals, the circuitry comprising:

an analog to digital converter (ADC) for converting a plurality of cardiac depolarization signals;

a detector for detecting at least one of said plurality of cardiac depolarization signals coupled to said analog to digital converter (ADC);

a digital to analog converter (DAC) coupled to the detector to convert at least some of the signals passing through said detector; ~~and~~

a means for R-wave detection adapted to mechanically and electrically couple to a ventricular chamber; and

a means for P-wave detection, wherein the means for P-wave detection is disposed on an external portion of an implantable medical device, and wherein both the means for R-wave detection and the means for P-wave detection are electrically coupled to said digital to analog converter (DAC).

7. (previously presented) The circuit of claim 6 wherein said circuit further comprises:

a plurality of signal inputs, wherein said plurality of signal imputs further comprise:

a signal input into said analog to digital converter (ADC) for a ventricular electrogram (VEGM) data signal from said lead;

a signal input into said analog to digital converter (ADC) for a electrocardiogram (ECG) data signal from said at least one subcutaneous electrode array (SEA); and

a signal input into said analog to digital converter (ADC) for an electrocardiogram (ECG) data signal from an external lead.

8. (previously presented) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signal is transmitted via a ventricular lead.

9. (previously presented) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal is transmitted from at least one xternal

electrode such as from a programmer implemented to validate said electrocardiogram (ECG) data signal from said subcutaneous electrode array (SEA).

10. (previously presented) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signal include a plurality of intrinsic ventricular depolarization waveforms that inhibit at least one pre-scheduled ventricular output pulse.

11. (previously presented) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal from the subcutaneous electrode array (SEA) is a primary input and provides the electrocardiogram (ECG) data signal to the analog to digital (ADC) on a substantially continuous basis.

12. (currently amended) A software system implemented in a circuit to monitor underlying sequences that are used in a single chamber ventricular-inhibited pacemaker, the sequencing method comprising:

instructions for starting a P-wave to R-wave (PR) cross check interval when a P-wave threshold crossing is sensed by at least a pair of electrodes of a subcutaneous electrode array;

instructions for discounting a P-wave if an R-wave is detected within the P-wave to R-wave (PR) cross check interval; and

Instructions for triggering a PVARP interval when an R-wave is detected.

13. (previously presented) The sequencing method of claim 12 wherein said PVARP interval blocks retrograde p-waves thereby providing protection against pacemaker-mediated tachycardia (PMT).

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14. (currently amended) The sequencing method of claim 12 wherein in the event no P-wave threshold crossing is sensed:

instructions for extending a ventricular atrial (VA) interval by an atrioventricular (AV) interval period; and

instructions for emitting a ventricular pacing pulse when the atrioventricular (AV) interval period expires.